DCCUMENT RESUME

ED 049 695 HE 002 101

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TITLE The Influence of Major Ambition Resources on College Aspiraticns and Attainments: Toward a Comprehensive Model.
INSTITUTION American Educaticnal Research Associati:n, Washington, D.C.
PUB DATE Feb 71
NOTE 22p.; Paper presented at the 55th Annual Meeting cf the American Educaticnal Research Association, New York, February, 1971

EDRS PRICE EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS *Academic Achievement, Academic Aspiration, *Aspiration, Goal Crientation, *Higher Education, Models, *Mctivatien, Objectives, *Student Motivation

ABSTRACT

This paper attempts to design a model that ccvers a comprehensive range cf thecretically relevant variables that focus on the aspiration-attainment process. The discussion is in 4 parts. First, the ccncept of "ambition" is separated into theoretically and operationally distinct components. Second, educational aspiration and college attainments are regarded as outcomes of a complex social process involving both the family and the school, in which the ambition rescurces interact and develcp. Third, the normative, social, and ccmpetitive structures of the high schccl are considered in accounting for major differences in the realization of student gcals. Fourth, the multiple regression-based technique (known as path analysis) is used tc assess the net, direct, simultaneous effect of each ambition resource on both aspiration and attainment. The sample was comprised cf all 297 senicr bcys in two small-town, West Coast high schocls, 77 percent of whom filled cut a questionnaire in 1963. A follcw-up questionnaire in 1967 was completed by 73 percent, and information was cbtained abcut the cthers. The variables selected for the analysis were: GPA, family sociceconomic status, IQ, parents' aspirations, achievement motivatien, achievement values, and extracurricular activities. The findings indicated that formal academic achievement was the most pcwerful resource in the ambition process. (AF)

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"THE INFLUENCE OF MAJOR AMBITION RESOURCES ON COLLEGE ASPIRATIONS AND ATTAINMENTS: TOWARD A COMPREHENSIVE MODEL"[1]

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Despite the plethora of studies dealing with the socio-economic and social-psychological antecedents of educational ambition and achievement, this extensive literature remains nearly void of explanatory models containing even a somewhat comprehensive range of theoretically relevant variables. The attempts at model-building which do exist usually either contain a very small number of variables or focus on a narrow view of the aspirations-attainment process.[2] Although no single completely comprehensive model of this process is operationally feasable, the discussion which follows is an attempt to extend and complement the knowledge base in this area in four major ways.

First, it explicitly separates the often-abused concept "ambition" into theoretically and operationally distinct components. Second, it regards educational aspirations and college attainments as outcomes of a complex social process involving both the family and the school in which these distinct "ambition resources" interact and develop. Third, it focuses particularly on the normative, social, and competitive structures of the high school in accounting for major differences in students' goals and their subsequent realization after graduation.[3] Fourth, by utilizing the multiple regression-based technique known as path analysis,[4] it is possible to assess the net, direct, simultaneous effect of each ambition resource on both aspirations and later attainments. The analysis, therefore, will specify those variables which influence the development of college goals to the greatest extent and, with goals also taken into account, those which account most directly for systematic differences in post-secondary attainments.

Until recently, for example, the major attempts to treat college aspirations and attainments within the context of causal models have limited themselves to three or four explicitly defined antecedents: the socio-economic status of the

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student's family (SES); his own academic achievement potential (as reflected by his IQ score); the aspirations which his parents have for him; and some indicator of his achievement values.[5] Each of these variables can be conceptualized as a major resource which may facilitate or impede the development of high "ambition" and its subsequent realization. A primary difficulty, of course, is that this set of variables by no means exhausts the range of potential resources which underlie either the emergence of aspirations for college or one's chances of surviving in college when the time comes. Recent work by this author suggests, for example, that achievements within the academic, extra-curricular, and status systems of the secondary school have an appreciable influence on both the generation and the later realization of educational aspirations above and beyond the influence of SES or IQ.[6] Furthermore, when these relationships are tested for spuriousness by controlling for a measure of intrinsic achievement motivation, they do not disappear, suggesting that there are direct benefits which accrue from successful performance in a variety of arenas that cannot be accounted for by family background or achievement motivation alone. In other words, the skills and capacities developed within the various competitive spheres of the high school should also be included among the resources which presumably underlie post-secondary amibtions and attainments.

In order to test this interpretation it is necessary to extend the scope of the present literature to include the entire range of ambition resources just mentioned. In this way the simultaneous independent contribution of each resource on both aspirations and later attainments can be estimated and an assessment of the most critical influences in this process attempted. Such a model should minimally contain measures of the socio-economic status of the family; the IQ of the student; his parent's aspirations for his educational career; his conscious, articulated achievement values; his underlying achievement motivation; his formal academic achievement capacity (reflected in his academic grades); his involvement and success in the school's extra-curricular program; his educational goals;

and his post-secondary achievements.[7]

THE SAMPLE AND METHODOLOGY

The sample chosen for this study consists of all 297 senior boys in two adjacent smalltown - suburban West Coast high schools of approximately 1300 students in 1963. At that time the general area was in a period of transition from that of a semi-rural to a more commercialized and full-fledged suburban area, and the process of converting open fields and wooded areas into middle-income residential developments continues to the present day. The residents are nearly all white, predominately Protestant, and socio-economically quite heterogeneous.[8]

During the first week of school each senior boy completed a questionnaire concerning his academic, social, extra curricular, and family experiences, his attitudes toward peers and school activities, and his future educational and occupational goals.[9] Academic records and Primary Mental Abilities test scores were also available for all students other than a few recent transfers. In addition, parents were requested to complete a questionnaire which explored their educational and work experiences; their extra-curricular, educational, and occupational aspirations for their son; and their evaluation of his academic, social, and extra-curricular abilities. Nearly 77 per cent were completed and returned.

A mailed follow-up primarily designed to assess each student's post-high school educational experiences was attempted in December, 1967. Those who responded promptly were sent a list of all non-respondents, along with a request for information about the latter's current whereabouts and college experience, if known. Seventy three per cent of the original sample returned the follow-up questionnaire as well as useful information on 12 per cent of their non-responding colleagues. The remaining 15 per cent were checked against school guidance and placement records, and this search revealed that none had ever requested that his high school transcript be sent to a college for admissions purposes, and none had ever matriculated.[10]

THE VARIABLES

The variables selected for inclusion in this analysis represent a fairly comprehensive range of factors shown, at some point in the literature, to influence students' decisions to seek a college education. Although some others might have been included, the seven major "ambition resources" selected for analysis were the theoretically most relevant and operationally most feasable variables with which to work in this body of data.

The discussion and analysis which follow assume that it is possible to treat the relationships among these variables as the products of a developmental process which takes place over a period of years. Most of the data, however, were collected at one particular point in time. Consequently, they can at best approximate the "true" dynamics and influences of the process being described. This means, of course, that the "causal model" examined here is causal only to the extent that adequate rationale exist for ordering the temporal sequence of the variables in a given way. In effect it is these rationale and not the precise sequence in which the variables were measured which permit an examination of the data in at least "quasi-causal" terms.

The model developed here presupposes that the socio-economic status (SES) of the student's family is the basic starting point for an analysis of his future success orientations. In this analysis SES is a summary measure consisting of four major components: father's occupation, education, and civic affiliations, and mother's education.[11] As such it indirectly reflects the intellectual and financial resources which bear upon the nature of family life and the status which the father in particular occupies within the community. Since these resources have major implications for the nature of child rearing and socialization practices in the family, they may directly influence all of the other variables in the model, including son's intellectual capacity (IQ).[12]

Although the operational definition of IQ is based on Primary Mental Abilities test scores obtained during grade eleven, I assume that these scores are basically

reflections of the student's innate capacity to manipulate cognitive stimuli as modified by the degree of stimulation and reinforcement present in his family environment. In other words this model allows that "intelligence" is something which may be both inherited from and stimulated by parents.[13]

The model also presupposes, however, that the family's concern for the future success of the child manifests itself relatively early. Although this orientation toward future success may not define itself initially in terms of a desire for son to attend college college (as operationalized here) or to occupy some specific occupational role, I assume that emergent socialization patterns reflect both the SES of the family and the perceived ability (IQ) of the child.[14] Whether or not parents urge the child to be successful (and implicitly attend college after high school) will be a reflection of their own status and values and his presumed achievement potential.

The direct results of this parental intervention, according to the model proposed here, are two fold: a subconscious internalization of orientations toward challenging situations (what I call achievement motivation-AM) and the development of a conscious set of criteria for judging the merits and status of others (what I call achievement values-AV).[15] These two sets of orientations are presumed to coexist independently within the same individual but depend on similar sets of theoretical antecedents (family SES, son's IQ, and parental aspirations for son).[16]

The model further presumes that these five ambition resources underlie the formal academic achievement of students in school. The assumption is that the student's grade point average (GPA) will be a reflection of not only his intellectual potential but these other resources as well.[17] Hence, SES, IQ, parents' aspirations, achievement motivation, and achievement values should all help to explain how well the student handles the academic competition in his school.

Although the classroom represents the major formal competitive arena in the American secondary school, it is by no means the only context in which students must apply their abilities and skills in order to win recognition and awards. The extra-curricular program provides a variety of contexts in which students are given the opportunity to develop their social, intellectual, and physical capacities and interests with varying amounts of teacher superivison and evaluation. As such extra-curricular activities provide exposure to a variety of learning experiences, the benefits of which are rhetorically praised but infrequently analyzed. The assumption made here, however, is that selection to and success in the "major" activities of the school pre-suppose a number of ambition resources already contained in the model.[18] As such the Extra-curricular Activities Index represents the seventh and final ambition resource presumed to underlie college goals.[19] These goals in turn presumably serve as the major direct link between these resources and the student's actual achievement in college.[20]

THE ANALYSIS

The model presented in Figure 1 is an empirically derived solution to the theoretical argument just presented. It conforms to the general features of path analysis as discussed earlier. The causal order, predicated on the assumptions just discussed, unfolds as one moves from left to right in the diagram, beginning with SES and ending with EAI. Each intervening (endogenous) variable serves first as a dependent variable for its causal antecedents and then as an independent variable for those variables which it subsequently influences. The arrows (paths) leading into a given variable represent the statistically significant direct links between that variable and its causal antecedents. Missing paths denote that the path coefficient (standardized regression coefficient or beta weight) is non-significant and can be deleted without appreciably affecting the reproducability of the original matrix of correlations on which the regression equations were based (see Table 1).[21] The coefficients lying "outside" the model (the residuals), when squared, indicate the proportion of variance in the dependent variable that is not accounted for by its direct antecedents.

TABLE 1: Original and Regenerated Correlation Coefficients for the Ambition Resources Path Model

ORIGINAL ZERO-ORDER CORRELATIONS	REGENERATED CORRELATIONS								
	SES	IQ	PAS	AM	AV	GPA	EAI	CG	CA
Socio-Economic Status		.2379	.3140	.1867	.0833	.1253	.0732	.2885	.3200
Son's IQ	.2379		.3681	.1450	.2242	.5599	.2239	.3767	.3518
Parents' Aspirations for Son	.3136	.3679		.3678	.2007	.4434	.2112	.4244	.4229
Achievement Motivation	.1865	.1925	.3705		.0631	.2899	.2220	.3354	.3336
Achievement Values	.0447	.2265	.2064	.0695		.2957	.2294	.1753	.2515
Grade Point Average	.1199	.5670	.4444	.3126	.2960		.3903	.5030	.5253
Extra-Curricular Activities Index	.0524	.2303	.2158	.2296	.2295	.3923		.2795	.4039
College Goals	.2860	.3853	.4251	.3126	.1819	.5057	.2792		.4540
College Attainment	.3111	.3974	.4244	.3428	.2466	.5270	.4017	.4558	

For example, the model shows that family SES has a direct .238 linear influence on the student's IQ, and both variables have independent direct influences on the level of parents' aspirations for him. Of these two factors, IQ (.311) rather than SES (.240) is the more impoetant, suggesting that for this sample, at least, the aspirations which parents have for their sons depend more on how they view his intellectual resources than on their own socio-economic position. It should be noted that these figures are nearly the perfect obverse of those reported by Sewell and Shah (1968), possibly because there is greater socio-economic variability in their very large sample.

The data also suggest, though, that son's achievement motivation is influenced appreciably more by his parents' ambition for him than by their socio-economic status per se (beta weights of .343 and .079 respectively), while son's IQ has no direct bearing on this outcome at all. In other words, the internalization of strong achievement orientations is related to the intellectual achievement capacity of the son only to the extent that parental ambition, the key element in this process, is itself responsive to son's IQ. The role of family SES is similar. However, son's conscious valuing of achievement in others (AV) is linked to SES only indirectly through parental ambition and his own intellectual ability. In fact, conscious achievement values are more directly associated with one's potential for being an achiever than with any other factor. In this connection, however, one should note that the decision to treat AM and AV as simultaneous, unrelated phenomena is more than justified by the model: their partial correlation, controlling for SES, IQ, and parents' aspirations is only -.016.[22]

Further examination of the model indicates, however, that son's AM and AV have nearly equal, significant direct influences on his high school academic performance (GPA), but by far the most important determinant of grade point average is his intellectual potential (.445) followed by parental ambition (.224). Achievement motivation and values serve as supplementary resources (.151 and .143 respectively).

However, the negative beta weight associated with SES (-.091) seems anomalous, particularly since family background is universally regarded as a major determinant of school grades. According to the original zero order correlation matrix in Table 1, in fact, they <u>are</u> positively associated (.1199), but the <u>net</u> relationship (i.e., the relationship with IQ, PAS, AM, and AV simultaneously taken into account) becomes negative. In other words, once the IQ, parental ambition, and achievement motivation and values of the highest academic performers are also taken into account, they turn out to have slightly lower SES backgrounds than their counterparts with lower grades.

Success within the extra-curricular arena, however, cannot be traced directly either to family influences or intellectual potential. The data in Figure 1 suggest that the most significant extra-curricular achievements are directly linked to the student's academic performance (.317) and only secondarily to his motivation and values (.122 and .128 respectively). This means, of course, not only that those who emerge as the giants of the activities structure are good students with better than average motivation and respect for achievement, but also the reverse: that those who opt out of the extra-curriculum altogether are likely to be marginal academic performers with relatively low achievement orientations.[23]

Although the findings just examined are of considerable value in themselves, the major issues in this analysis have yet to be examined. These issues involve the questions directly related to the generation and realization of post-secondary educational goals. Conceptually the variables analyzed in Figure 1 have been regarded as resources which underlie the student's desire to attend and complete college. Since the influence of a comprehensive set of resources such as this has not been assessed previously, the most obvious question is which, if any, of these variables directly dominate the aspirations process? The answer, according to the data presented in Figure 2, is relatively complex.

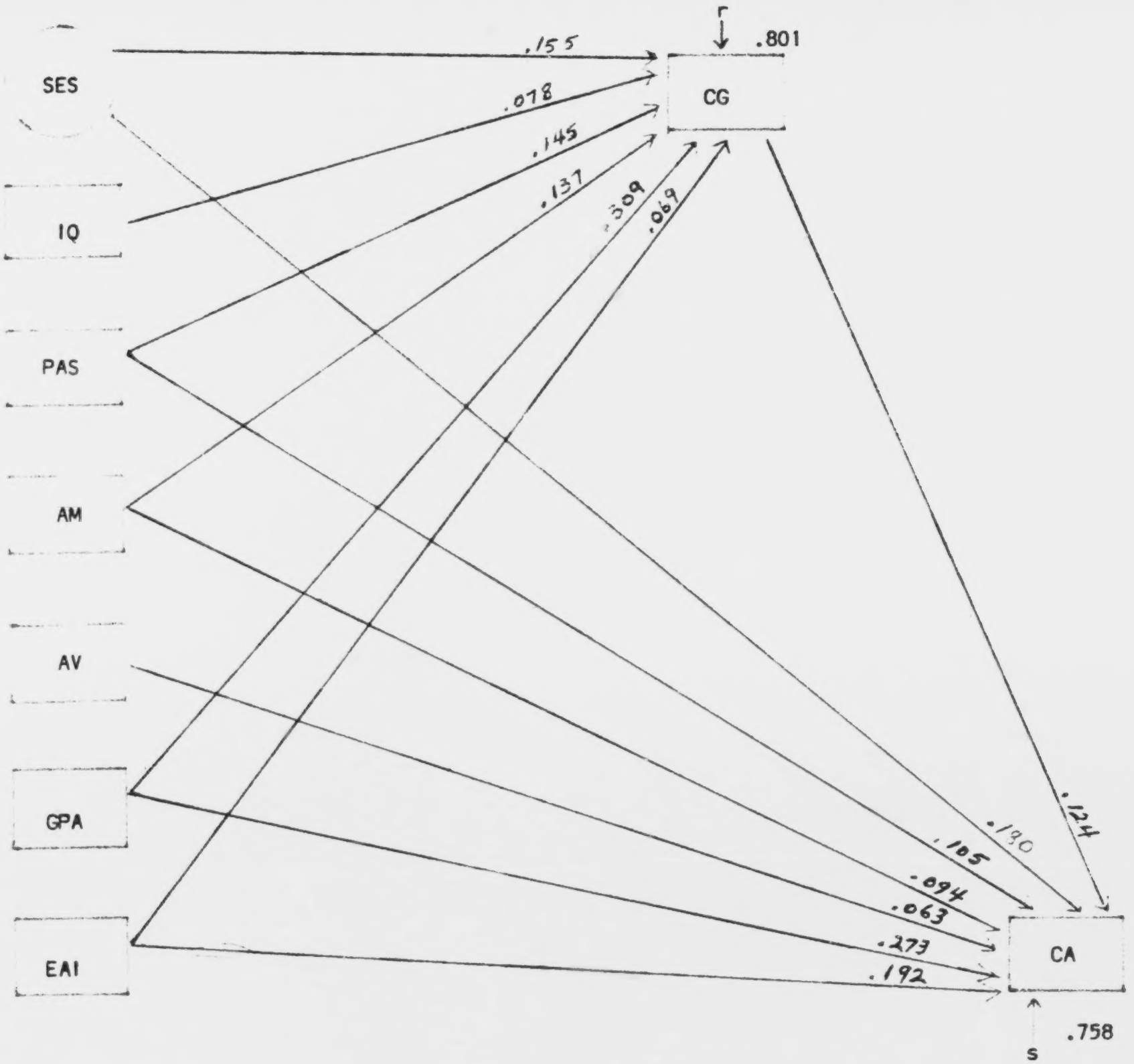
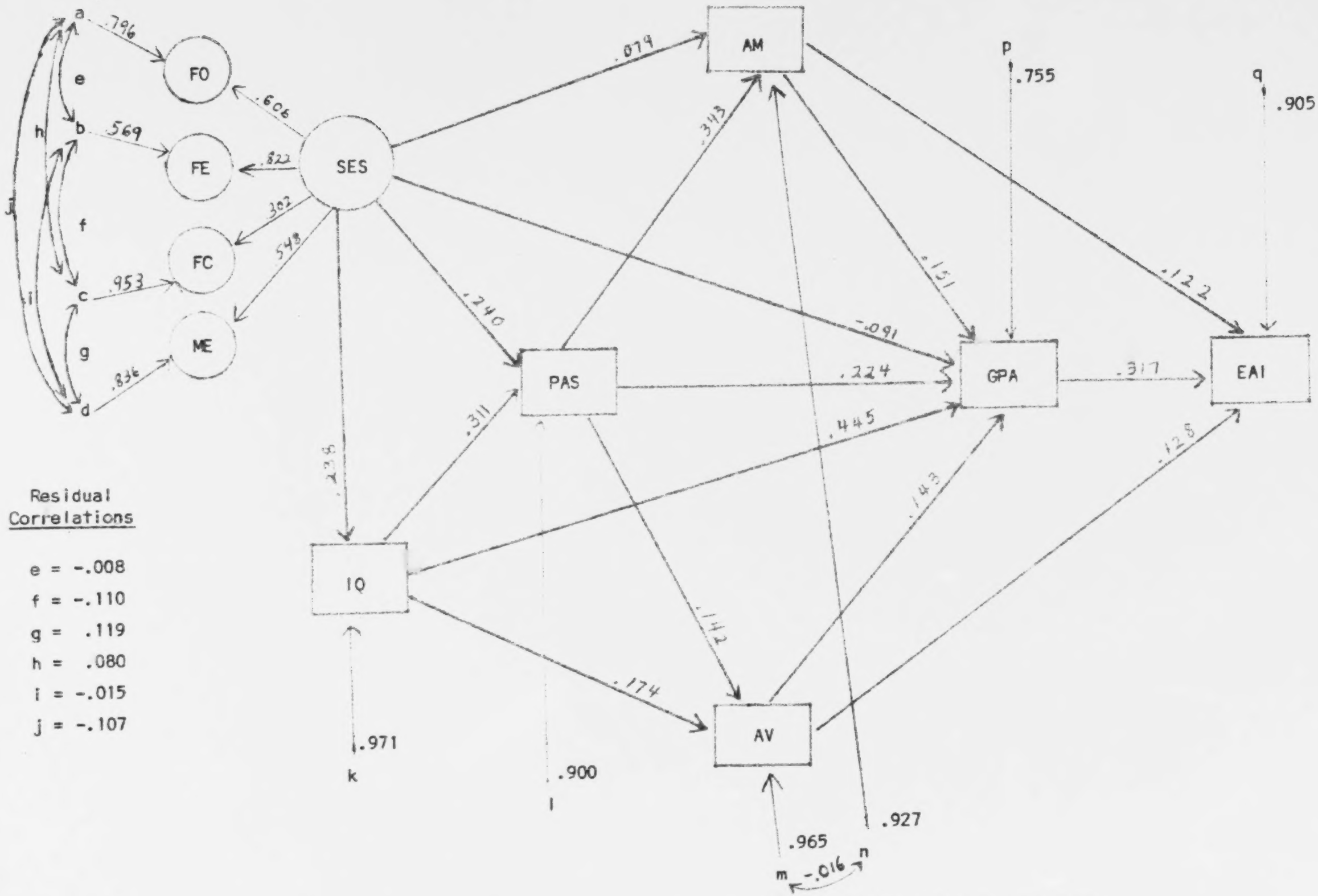


FIGURE 2 - The Direct Effects of Seven Major Ambition Resources on College Goals and Attainments



Residual Correlations

e = -.008
f = -.110
g = .119
h = .080
i = -.015
j = -.107

FIGURE 1 - The Significant Empirical Links Among Seven Major Ambition Resources

As diagramed, there are six significant, direct determinants of college goals, dominated by the student's formal academic achievement (.309), followed by his family's socio-economic status (.155), their expressed ambition for him (.145), and his own intrinsic achievement motivation (.137). The direct net effects of his intellectual potential and extra-curricular achievements are also positive but relatively minor (.078 and .069 respectively). These findings represent a major departure from more limited models in three respects.

First of all, they domonstrate that high school academic achievement rather than IQ or achievement motivation is the pivotal resource in influencing student goals. This is not to say, of course, that grades are obtained without regard to student IQ or motivation, but rather it demonstrates that the latter are important resources mainly because they help to facilitate formal achievement.[24] The ability to meet the demands of the school's academic program is apparently the key factor on which to base one's goals for future achievement.

Second, both the socio-economic and motivational resources which the family provides are important supplementary determinants in this process, but they are not, as Sewell and Shah have suggested with their more limited models, the key factors.[25] Parents' aspirations for their son, for example, undoubtedly help to influence his educational goals, but they do so primarily by stimulating his achievement motivation, values, and academic performance. Thus, by expanding the set of resources believed to underlie college aspirations, I have reduced the association between parents' aspirations for son from its <u>total</u> zero order magnitude of .4251 to a beta weight of only .145, its <u>unique</u> influence.[26] Similarly the zero order correlation between SES and CG is reduced from .2860 to a beta weight of only .155. Within the context of the model described in Figure 1, in other words, family resources play an important role in the development of the motivational and academic resources which combine to dominate the aspirations decision.[27]

Third, IQ is an important resource in this process not because of its independent contribution to the final outcome but because of its decisive bearing on the student's academic performance, the variable which does independently influence college goals the most. Because of their large colinearity (.567), IQ's unique influence on college goals (.078) is a mere fraction of its overall zero-order association (.3853).

Although the data just examined contain several unique if not surprising findings, they hardly compare with some of the unexpected results which emerge from the analysis of actual college attainments. Of all the surprises, however, the greatest must be the relatively low independent effect of goals themselves on attainments: the beta weight of only .124 is only the fourth largest in the model.[28] The most important resource underlying the student's capacity to realize his educational ambitions is his academic achievement in high school (.273). It is followed in order by his extra-curricular achievements (.192), his family's socio-economic status (.180), his actual college goals (.124), and his parents' aspirations (.105). Net of these factors his achievement motivation and values have a minor impact (.094 and .063 respectively). These results clearly deserve some elaboration.

First, the universally accepted axiom relating college retention to high school grades seems to apply to this study as well, but because of the nature of the other variables in the model its meaning is not immediately obvious. This axiom exists largely because high school grades are indiscriminately viewed as a proxy for intellectual aptitude, achievement motivation, achievement values, family SES, college aspirations, and other "success-related" indices. Since each of the variables just mentioned have also been included in the analysis, however, the impact of grades on college achievement must be understood in terms distinct from these. In other words, they reflect important resources besides intelligence, motivation, values, aspirations, and family background. One of the more obvious explanations, therefore, is that students with high grades in high school survive longer in college because they have

a larger base of intellectual skills and useful information than their peers with lower grades. In addition, they are probably more adroit at applying these resources efficiently in meeting course work demands. Giving the professor what he wants is undoubtedly associated with having practiced the art of selective retention and organization of materials during high school.

Second, the general mythology surrounding the importance of the school's extra-curricular program in fostering future success seems dramatically supported by these data. However, the activity index employed here reflects biases which are not always shared by school personnel and students. Because of the unique findings which emerged in earlier analyses of these same data (see Spady 1970b and 1971), this index emphasizes activities which demanded that students exercise a considerable amount of initiative and responsibility in order to be successful. Student government positions and service organizations in particular received extra weight. Hence, the data suggest that participation in activities of this kind provide students with important socializing experiences that make them more capable of meeting the social and academic demands of college life. By having assumed important responsibilities and acquired leadership skills during high school, a student is apparently better equipped to handle the independence and adjustment demands of college life.

In both cases, however, the skills just discussed imply an ability to translate potential of various kinds into actual, recognized performance. It is perhaps these elements which prove to be more beneficial than the resources which families can provide. Certainly these data confirm that parents with superior educational, financial, and ambition resources do benefit the educational achievements of their children, but these resources must be distinguished from those which directly influence the student's ability to act in a fashion which facilitates his academic and social integration in college.

By the same token, the data clearly show that the desire to attend and to finish college is an insufficient resource by itself. High ambition does, of course, facilitate college achievement, but it is considerably less important than grades, activities, and family SES. In effect, aspirations operates as a conditional variable for achievement: it is the orienting mechanism which makes the initial decision to attend likely or not. Once that decision is made, however, actual performance-based resources are of considerably more importance.

CONCLUSIONS AND IMPLICATIONS

Taken together these findings unambiguously isolate formal academic achievement as the most powerful resource in the ambition process, both in stimulating and subsequently facilitating the realization of college goals. Although parents' aspirations for their son and his IQ, motivation, and achievement values are important determinants of high school academic performance, they are not the factors which primarily influence his desire for higher education nor his ability to fulfill those goals. As a result, I would argue that studies which have used these variables to explain aspirations and attainments without taking grade performance explicitly into account should be interpreted cautiously. In addition, the repertory of skills and experiences obtained from participation in important and challenging school activities also cannot be overlooked as an important resource in facilitating college success since these capacities clearly operate independently of both the student's formal academic skills and his motivational, normative, and family resources.

In effect, then, the model presented here, although limited in relation to its specific data base, offers a more comprehensive and penetrating view of the aspirations and attainment processes than one is accustomed to seeing in print. The results of this investigation call into question the limited choice of variables commonly used in the present literature and suggest that new foci must be adopted. Research which concentrates solely on the student's motivational, normative and family

resources as explanations for college aspirations and success should also expand its frame of reference to include the range of demonstrated skills which high school students possess and to the nature of the competitive structures within the school which foster them. Only in this way can a truly comprehensive understanding of the ambition process be accomplished.

FOOTNOTES

1. I am indebted to Robert M. Hauser and David B. Hollie for their invaluable assistance in clarifying some of the intricacies of path analysis and to Keith Simkin and Ivan Charner for their expert help in the preparation and analysis of these data.

2. The research on college aspirations (or plans) is very extensive and has been summarized elsewhere according to major themes (for example, see: Kandel and Lesser, 1970; Meyer, 1970; and Spady, 1970b). With the exception of Duncan, Haller, and Portes (1968) highly complex models analyzing peer influences and the recent work of Sewell, Haller, and Ohlendorf (1970), the causal models that have been developed to explain educational aspirations have been limited to five or fewer variables (see, especially Sewell and Shah, 1968; Rehberg, Schafer, and Sinclair, 1970; and Duncan's 1966 analysis of Turner's 1964 model of ambition).

3. For a more thorough statement and analysis of these issues see Spady (1970b and 1971).

4. The basic theoretical and mathematical features of path analysis are developed by Duncan (1966) and Heise (1969). For a less elaborate exposition on this technique see Spady (1970a).

5. Other than the recent exceptions noted in footnote 2, models of this kind have been presented by Sewell and Shan (1968) and Rehberg, Schafer, and Sinclair, 1970.

6. For a more elaborate treatment of these ideas and data see Spady (1971).

7. Ideally other variables might have been included in such a model. For example peer aspirations or influences (discussed most recently by Kandel and Lesser, 1970) and peer group status (analyzed by McDill and Coleman, 1965, and by Spady, 1970b and 1971) might have been included, but the resulting model would have become unwieldly.

8. Although this sample is hard to characterize in socio-economic terms the median SES level could be described as "lower middle class." However, it clearly lacks both the SES extremes one would find in a large urban center and the conspicuous minority groups which may suffer from discrimination in some contexts. Together these factors help to produce a relatively open and egalitarian climate in both schools.

9. The questionnaire required less than an hour to complete and contained both forced-choice and open-ended items.

10. For purposes of analysis, these students were coded as having had no post-secondary education.

11. These components were combined into a single measure by employing a MINRES (minimum residual) factor analysis. The factor loadings for each component are presented in Figure 1. They show that SES is primarily a reflection of

father's education (.822), father's occupation (.606), and mother's education (.548), and only to a lesser degree father's civic affiliations (.302). Father's occupation is coded into 5 ordered categories ranging from professional-scientific to semi-skilled wage earner. Both father's and mother's education fall on 8 point scales ranging from post graduate degree to less than eight years of schooling. There are 6 categories of father's civic affiliations which range from "national professional organizations" to no memberships or activities at all.

12. For an elaboration of three major theses relating family socio-economic resources to cognitive or motivational development see Bernstein (1961), Bronfenbrenner (1958 and 1961), and Rosen (1956, 1959, and 1961).

13. This position circumvents the highly complex controversy surrounding the intergenerational transmission of intelligence recently rekindled by Jensen (1969). It assumes that the capacities measured by "intelligence" tests can be either inherited, stimulated by the environment, or both.

14. Specifically, these "ambitions" were operationalized in terms of the amount of education parents wanted for their son. This was measured by an item in the parents' questionnaire whose six categories ranged from "specialized graduate work" to "he should go to work now."

15. Achievement motivation (AM) is a theoretical construct based on responses to items which asked the student to list his 3 most interesting and 3 easiest subjects. Comparisons were made across lists and the number of similar answers recorded, ranging from a low of 0 to a high of 3. I assumed that the greater the number of matches the lower the student's intrinsic motivation; i.e., the more likely he was to view subjects as interesting only if they were easy.

    Achievement values (AV) is a theoretical construct based on an item which asked the student to list the 3 criteria he used in conferring respect on a fellow student. Alternatives reflecting respect for significant academic or extra-curricular accomplishments were scored higher than other responses. The 3 scores were weighted according to rank (first, second, or third choice) and summed.

16. This rationale conforms closely to the distinctions made by Rosen (1958 and 1959) and McClelland (1961) between the conscious evaluation of criteria according to standards of performance, and the unconscious disposition toward engaging in challenging activities in which standards of excellence are demanded or implied.

17. Grade point average was computed according to standard methods for all academic courses taken during the student's first three years of high school. It does not include marks in physical education, typing, or other commercial and vocational courses.

18. The Extra-curricular activities index was constructed to give special weight to participation in activities known to demand high levels of skill and responsibility in service to the school. More extensive theoretical and empirical support for this rationale are provided in Spady (1970b and 1971). The student's three most important activities were weighted according to choice rank and summed. Possible scores ranged from a high of 10 to a low of 0 for someone with no activities.

19. College goals was operationalized by a forced choice item which asked students to indicate the amount of formal education they would like to have. The possible answers ranged over 6 alternatives from "post-graduate degree" to "some high school."

20. Educational attainments were measured by compiling information from several items on the December 1967 questionnaire and from school records. The answers were collapsed into 6 categories ranging from "currently in the fourth year of college" to "no schooling after high school."

21. The zero-order correlation coefficients falling below the major diagonal on Table 1 provide the basis for calculating the regression equations from which the beta weights are derived. The correlations above the diagonal are those which are reproduced by applying the standard path theorem to the model as it appears. When a path model is fully identified, i.e., when every dependent variable is linked directly to all of its possible antecedents, the original zero-order correlation between any two variables can be (perfectly) reproduced by tracing back to the independent variable from the dependent using every available unique route. When paths are missing these generated values will not equal the original values, indicating that the model is not a perfect representation of the original data. It is standard practice, however, to treat discrepancies as large as .050 as permissible. According to this criterion the model depicted in Figures 1 and 2 is entirely adequate since none of the discrepancies equals or exceeds this .050 criterion. For a more lucid and detailed example of this regeneration procedure see Spady (1970a).

22. Their original zero-order correlation is also quite low but positive (.0625), indicating that these two phenomena as measured here are indeed essentially unrelated.

23. The zero-order correlation between GPA and IAI of .5925 clearly implies that the extra-curriculum of the school does not operate independently of the formal academic reward structure. Students who lack the ability, interest, or motivation to meet the school's academic standards apparently have little success gaining access to most of the visible and highly regarded extra-curricular positions as well. In this sense, failure in one sphere implies failure in the other.

24. It is interesting to note, for example, that after using IQ as the key intellectual resource variable in his work for at least a decade, Sewell has also employed a measure of academic performance in his most recent work (Sewell, Haller, and Ohlendorf, 1970). There we find a pattern similar to mine: the relationship between IQ and educational aspirations virtually disappears when grade performance (among others) is introduced into the equation. However, in their model the net influence of "significant others" (a weighted sum of parental encouragement, teacher encouragement, and friends' college plans) is stronger than that of GPA.

25. Sewell and Shah (1968) use a four variable model in which parental encouragement (the theoretical equivalent of PAS in this study) mediates between SES and IQ and college plans. For the boys in their sample the beta weights are SES, .22; IQ, 24; and parental encouragement, .34.

26. This means, of course, that the difference between these two numbers (.4251 - .145 = .2801) consists of the indirect effect which PAS has on CG via its association with the other independent variables in the model.

27. For a more detailed analysis of the way in which family variables may influence this process see Rehberg, Sinclair, and Schafer (1970).

28. This is particularly surprising in view of the Sewell, Haller, and Ohlendorf (1970) findings. They show that the beta weight between educational aspirations and attainments is .457, with academic performance and significant others influence controlled. Part of this discrepancy is due to the exceptionally high zero order correlation between these two variables in their study (.696). This high correlation may itself be a function of the coding scheme employed: aspirations is broken into only 3 categories and attainment into only 4, with only 1 differentiation made regarding length of stay in college.

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